

REMARKS

Claims 1-20 are pending. Claim 11, 13, and 20 is herein amended and claim 12 is herein cancelled without prejudice. Claim 11 is amended to include the feature of claim 12 and claim 13 is amended due to the amendment of claim 11. Claim 20 is amended to fix an error. Applicants submit that the amendments do not add new material to the current Application. No amendment made is related to the statutory requirements of patentability unless expressly stated herein. No amendment made is for the purpose of narrowing the scope of any claims, unless Applicants argue herein that such amendment is made to distinguish over a particular reference or combination of references.

Information Disclosure Statement

Applicants again request that the Examiner return the IDS (Form PTO/SB/08A) that was filed with the application on September 23, 2003 with his initial next to each reference or that he cross out any references, if applicable. The Examiner signed the IDS form but failed to mark each reference with his initials or cross through the references, if applicable, as required by MPEP 609. For the Examiner's convenience a copy of the returned IDS is attached. If the Examiner does not return the IDS before this application issues, Applicants will presume the Examiner considered all references.

Claims Rejections

Claims 1-10 and 20 are patentable under 35 U.S.C. 102(b) over Summerfelt

Applicants respectfully submit claims 1-10 and 20 are patentable under 35 U.S. 102(b) over Summerfelt (US 6,204,069) because Summerfelt fails to teach all features of at least independent claims 1 and 20 from which claims 2-10 depend. More specifically, Summerfelt fails to teach a first conductive smoothing layer formed over the first electrode, wherein the first smoothing layer has a surface roughness less than that of the first conductive electrode, as stated in independent claims 1 and 20. The Examiner contends that Summerfelt's elements 50 and 42 are an electrode and Summerfelt's element 34 is a conductive smoothing layer. This is improper for several reasons.

First, Summerfelt teaches that element 50 is capacitor plug, element 42 is an electrode buffer layer, and element 34 is a lower electrode. (See column 5, lines 30-31, column 6, lines 23-24

and lines 37-39.) Therefore, Summerfelt teaches that element 34 is an electrode and that the underlying layers 50 and 42 are not electrodes. If layers 50 and 42 were electrodes, Summerfelt then would have used the phrase "electrode" to describe these layers. Because Summerfelt describes some layers as electrodes and others not as electrodes, Summerfelt clearly meant that layers 50 and 42 were not electrodes, but layer 34 was. Therefore, layers 50 and 42 cannot be the electrode in Applicants' claims 1-10 and 20. In addition, layer 34 cannot be the conductive smoothing layer in Applicants' claims 1-10 and 20 because i) it is not over an electrode, and ii) it is an electrode itself. By making Summerfelt's element 34 be a smoothing layer the functionality of Summerfelt is destroyed because element 34 serves as an electrode.

Second, Summerfelt teaches that element 50 is capacitor plug, element 42 is an electrode buffer layer, and element 34 is a lower electrode. (See column 5, lines 30-31, column 6, lines 23-24 and lines 37-39.) One skilled in the art knows that a capacitor plug is not an electrode. Stating that a capacitor plug is an electrode is like stating that any conductive line is an electrode. Clearly, the telephone wires in the walls of building are conductive, but they are not electrodes. Summerfelt's teachings support this by not teaching that element 50 is an electrode, but instead teaching that layer 34 is an electrode (see above.)

Third, Applicants wish to clarify that Summerfelt fails to teach or suggest that element 34, the lower electrode, can be TiO, but does teach that element 34 can be TiO₃. (The Examiner contends that Summerfelt's element 34 has a surface roughness less than that of elements 50 and 42 because it is inherent that TiO layer has a small atomic size than the W layer, thus being smoother.) Applicants herein request the Examiner provide support that a TiO₃ layer has a smaller atomic size than the W layer and thus is smoother if this rejection is to be upheld.

For at least these reasons, claims 1-16 and 20 are patentable over Summerfelt under 35 U.S.C. 102(b).

Claims 11-16 are patentable under 35 U.S.C. 102(b) over Summerfelt

Applicants respectfully submit claims 11-16 are patentable under 35 U.S. 102(b) over Summerfelt because Summerfelt fails to teach all features of at least independent claim 11, from which claims 12-16 depend. More specifically, Summerfelt fails to teach the first smoothing layer comprises titanium rich nitride, as stated in claim 11.

Assuming arguendo that Summerfelt's element 34 is a smoothing layer, it cannot be the smoothing layer in claims 11-16. Claim 11 states that the smoothing layer comprises titanium

rich nitride. While Summerfelt teaches that element 34 can be titanium nitride, Summerfelt fails to teach or suggest that element 34 can be titanium rich nitride. (See Column 5, lines 30-42.) As disclosed in Applicants' specification on page 5, line 26 to page 6, line 1, titanium rich nitride (TiRN) has a stoichiometric ratio of Ti:N that is greater than 1:1. Summerfelt fails to teach using titanium nitride with a stoichiometric ration greater than 1:1 as a smoothing layer.

Therefore, claims 11-16 are patentable over Summerfelt under 35 U.S.C. 102(b).

Claims 17-19 are patentable under 35 U.S.C. 102(b) over Summerfelt

Applicants respectfully submit claims 17-19 are patentable under 35 U.S. 102(b) over Summerfelt because Summerfelt fails to teach all features of at least independent claim 17, from which claims 18-19 depend. More specifically, Summerfelt fails to teach a smoothing layer formed over the first electrode, wherein the first smoothing layer comprises titanium rich nitride, as stated in claim 17.

First, claims 17-19 are patentable over Summerfelt for at least the reasons listed above with respect to claims 1-16 and 20.

Furthermore, claims 17-19 are also patentable over Summerfelt for the same reasons claims 11-16 are patentable over Summerfelt.

The Examiner seems to have failed to notice that claim 17 was previously amended so that the first smoothing layer comprises a titanium rich nitride (see page 4 of Applicant's response), because the Examiner states that Summerfelt teaches all elements of claim 17 because Summerfelt teaches "...a second layer over the first layer, wherein the second layer comprises a refractory nitride..." (See page 5, paragraph 17, line 5-6 of the Office Action mailed 12/2/2004.) Applicants wish to point this out to the Examiner to avoid any confusion as to the pending claims. If there is an issue as to this previous amendment not being in the USPTO's files, Applicants request the Examiner contact Applicants' practitioner so we can rectify any issues. Thank you in advance.

Although Applicants may disagree with statements made by the Examiner in reference to the claims and the cited references, Applicants are not discussing all these statements in the current Office Action since reasons for the patentability of each pending claim is provided without

addressing these statements. Therefore, Applicants reserve the right to address these statements at a later time if necessary.

Applicants earnestly solicit allowance of all pending claims. Please contact Applicant's practitioner listed below if there are any issues.

If Applicant has overlooked any additional fees, or if any overpayment has been made, the Commissioner is hereby authorized to credit or debit Deposit Account 503079, Freescale Semiconductor, Inc.

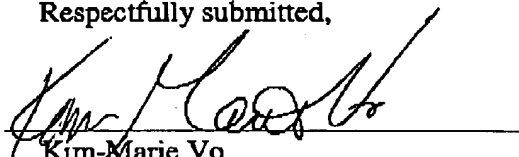
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Respectfully submitted,

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